

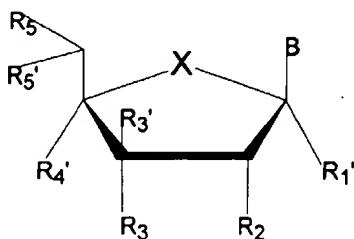
**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

Claims 1-54 (Withdrawn).

55. (Currently amended) A compound having the structure:



wherein:

B is a nucleoside base;

any alkyl portion of R<sub>1'</sub>, R<sub>3'</sub>, R<sub>4'</sub> and R<sub>5'</sub> is C1 to C10, linear, branched, saturated or unsaturated;

any aryl portion of R<sub>1'</sub>, R<sub>3'</sub>, R<sub>4'</sub> and R<sub>5'</sub> is a phenyl, polycyclic ring or heterocycle;

R<sub>2</sub> is selected from the group consisting of H, OH, alkoxy, aralkoxy and aryloxy; and and X is O;

(I) where R<sub>3</sub> and R<sub>5</sub> are independently selected from the group consisting of OH, OCEPA and a hydroxyl blocking group:

(A) where:

R<sub>1'</sub> is selected from the group consisting of alkyl, substituted alkyl, aralkyl, substituted aralkyl, aryl, and substituted aryl, where the substituted portion of at least one of the substituted alkyl, substituted aralkyl and substituted aryl is selected from the group consisting of NO<sub>2</sub>, N<sub>3</sub>, CF<sub>3</sub>, SH, SR, COOH, COOR, SO<sub>3</sub>H, SO<sub>3</sub>R, F, Cl, Br, and I, where R is selected from lower alkyl, aralkyl and aryl;

R<sub>3</sub>', R<sub>4</sub>' and R<sub>5</sub>' are all H; and

with the proviso that where R<sub>2</sub> is H and R<sub>3</sub> is OH, then R<sub>1</sub>' is not substituted alkyl;

(B) where:

R<sub>3</sub>' is selected from the group consisting of substituted alkyl, aralkyl, substituted aralkyl, aryl, and substituted aryl, where the substituted portion of at least one of the substituted alkyl, substituted aralkyl and substituted aryl is selected from the group consisting of CN, N<sub>3</sub>, CF<sub>3</sub>, NH<sub>2</sub>, NR<sub>2</sub>, OR, SH, SR, COOH, COOR, SO<sub>3</sub>R, F, Cl, Br, and I, where R is selected from lower alkyl, aralkyl and aryl; and

R<sub>1</sub>', R<sub>4</sub>' and R<sub>5</sub>' are H;

(II) where:

one of R<sub>3</sub> and R<sub>5</sub> is an internucleotide linkage and the other is selected from the group of OH, an internucleotide linkage and a hydroxyl blocking group;

R<sub>1</sub>' is H; and

two of R<sub>3</sub>', R<sub>4</sub>' and R<sub>5</sub>' are H and the other is modified as set forth below:

(A) R<sub>4</sub>' is selected from the group consisting of substituted alkyl, substituted aralkyl, aryl, and substituted aryl, where R<sub>4</sub>' does not comprise a label; and the substituted portion of the substituted alkyl and substituted aralkyl is other than OH, CHO, SH, NH<sub>2</sub>, COOH and NHC(O)CF<sub>3</sub>;

(B) when R<sub>5</sub> is an internucleotide linkage;

R<sub>5</sub>' is selected from the group consisting of substituted alkyl, aralkyl, substituted aralkyl, aryl, and substituted aryl; and the substituted portion of the substituted alkyl is other than NH<sub>2</sub> and epoxyethyl; and

Appl. No. 09/697,545  
Amdt. dated Sep. 4, 2003  
Reply to Office action of Jul. 15, 2003

- (C) R<sub>3</sub>' is selected from the group consisting of substituted alkyl, aralkyl, substituted aralkyl, aryl, and substituted aryl; and  
the substituted portion of the substituted alkyl is other than OH;
56. (Original) The compound of claim 55 which satisfies grouping I(A).
57. (Original) An oligonucleotide containing the nucleoside of claim 56.
58. (Original) The compound of claim 55 which satisfies grouping I(B).
59. (Canceled)
60. (Original) The compound of claim 55 which satisfies grouping II(A).
61. (Original) An oligonucleotide containing the nucleoside of claim 60.
62. (Original) The compound of claim 60, wherein the substituted portion of at least one of the substituted alkyl, substituted aralkyl and substituted aryl is selected from the group consisting of NH<sub>2</sub>, NHR', NR'R" and "NR'R"R"" where R', R" and R"" are independently selected from the group consisting of lower alkyl and lower alkylcarbonyl.
63. (Original) The compound of claim 60, wherein the substituted portion of at least one of the substituted alkyl, substituted aralkyl and substituted aryl is selected from the group consisting of CN, NO<sub>2</sub>, N<sub>3</sub>, halogen, OR', SH and SR' where R' is selected from the group consisting of lower alkyl and lower alkylcarbonyl.
64. (Previously amended) The compound of claim 60, wherein the substituted portion of at least one of the substituted alkyl, substituted aralkyl and substituted aryl is selected from the group consisting of COOH, COOR' and CONR'R" where R' and R" are lower alkyl.

65. (Original) The compound of claim 60, wherein the substituted alkyl, substituted aralkyl and substituted aryl independently comprise a linker which is attached to at least one of a functional moiety, an artificial nuclease, a cross-linking reagent, an intercalator, and a reporter molecule.

66. (Original) The compound of claim 55 which satisfies grouping II(B).

67. (Original) The oligonucleotide of claim 66, wherein the substituted portion of at least one of the substituted alkyl, substituted aralkyl and substituted aryl is selected from the group consisting of  $\text{NHR}'$ ,  $\text{NR'R}''$  and  $^{\text{t}}\text{NR'R''R}'''$  where  $\text{R}'$ ,  $\text{R}''$  and  $\text{R}'''$  are independently selected from the group consisting of lower alkyl and lower alkylcarbonyl.

68. (Currently amended) The oligonucleotide of claim 66, wherein the substituted portion of at least one of the substituted alkyl, substituted aralkyl and substituted aryl is selected from the group consisting of CN,  $\text{NO}_2$ ,  $\text{N}_3$ , halogen and SR' where R' is ~~selected from the group consisting of lower alkyl and lower alkylcarbonyl~~.

69. (Canceled)

70. (Original) The compound of claim 55 which satisfies grouping II(C).

71. (Original) The oligonucleotide of claim 70, wherein the substituted portion of at least one of the substituted alkyl, substituted aralkyl and substituted aryl is selected from the group consisting of  $\text{NHR}'$ ,  $\text{NR'R}''$  and  $^{\text{t}}\text{NR'R''R}'''$  where  $\text{R}'$ ,  $\text{R}''$  and  $\text{R}'''$  are independently selected from the group consisting of lower alkyl and lower alkylcarbonyl.

72. (Previously amended) The oligonucleotide of claim 70, wherein the substituted portion of at least one of the substituted alkyl, substituted aralkyl and substituted aryl is selected from the group consisting of CN,  $\text{NO}_2$ ,  $\text{N}_3$ , halogen, OH, OR', SH and SR', where R' is lower alkyl.

Appl. No. 09/697,545  
Amdt. dated Sep. 4, 2003  
Reply to Office action of Jul. 15, 2003

73. (Currently amended) The oligonucleotide of claim 70, wherein the substituted portion of at least one of the substituted alkyl, substituted aralkyl and substituted aryl is selected from the group consisting of COOH, COOR' and CONR'R", where R' and R" are independently selected from the group consisting of lower alkyl, aralkyl and aryl.

74. (Original) The oligonucleotide of claim 70, wherein the substituted alkyl, substituted aralkyl and substituted aryl independently comprise a linker which is attached to a least one of a functional moiety, an artificial nuclease, a cross-linking reagent, an intercalator, and a reporter molecule.